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JUN 18 1969
CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,
and
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

AS OF
JUNE 1, 1969

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80521
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR MONTANA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

KENNETH E. GRANT
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

|||||
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In Cooperation with

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Montana Agricultural Experiment Station

|||||
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MONTANA WATER SUPPLY OUTLOOK

June 1, 1969

* * * * *

* The snowmelt rate was above average during April
* and May. The current snowpack is well below
* average over all of the State.

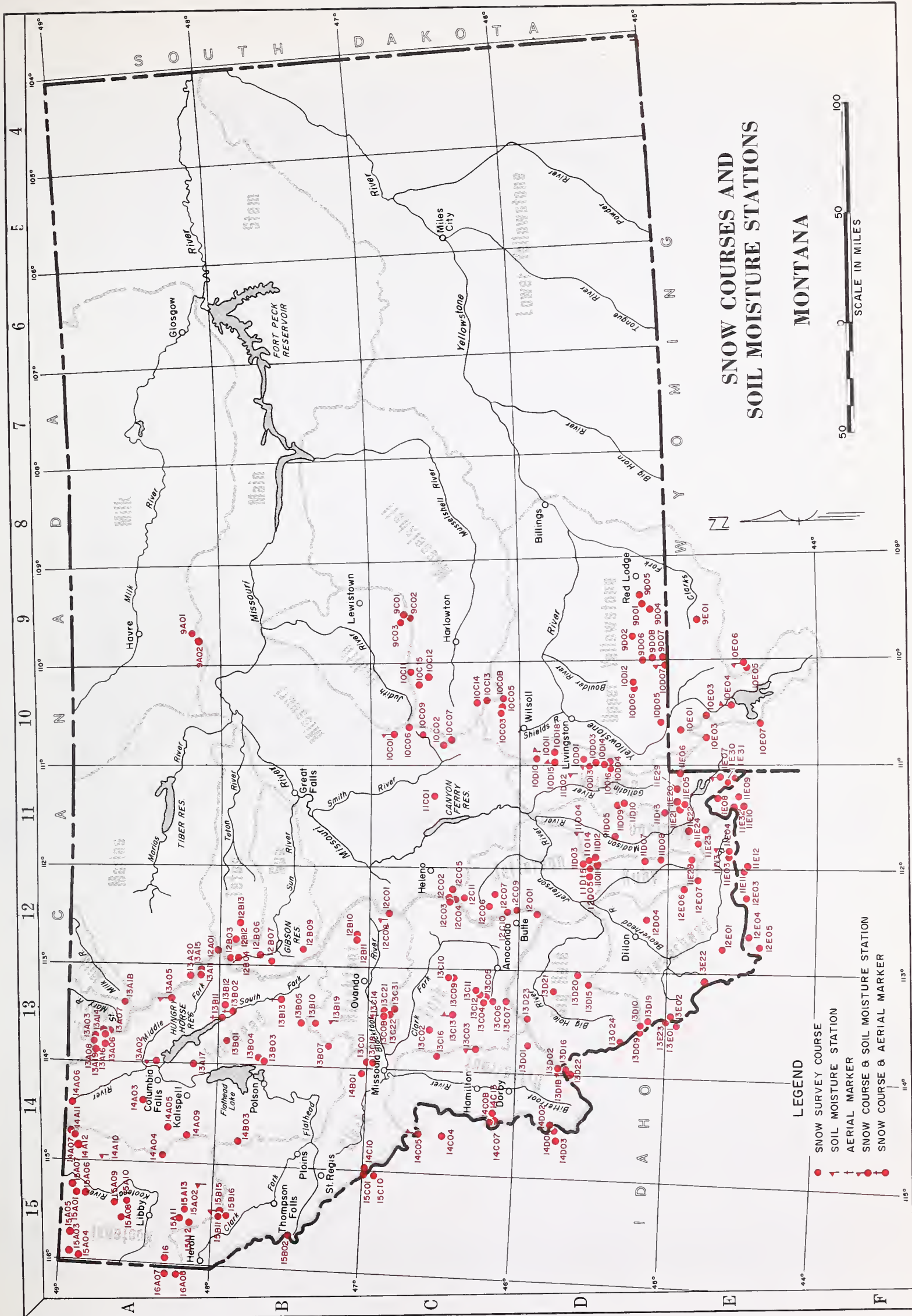
* Unless mountain precipitation is above average
* during the next three months some shortages of
* irrigation supplies and low streamflow can be
* expected.

* * * * *

Continuous above normal temperatures and generally near or below average mountain precipitation has depleted the snowpack to below average. Streamflow for April and May was well above average, reflecting the sustained melt.

Mountain soils are generally wet while foothill and valley areas are quite dry in some parts of the State.

With the lack of snow cover in the higher elevations, streams are expected to drop to their late summer levels earlier than usual.



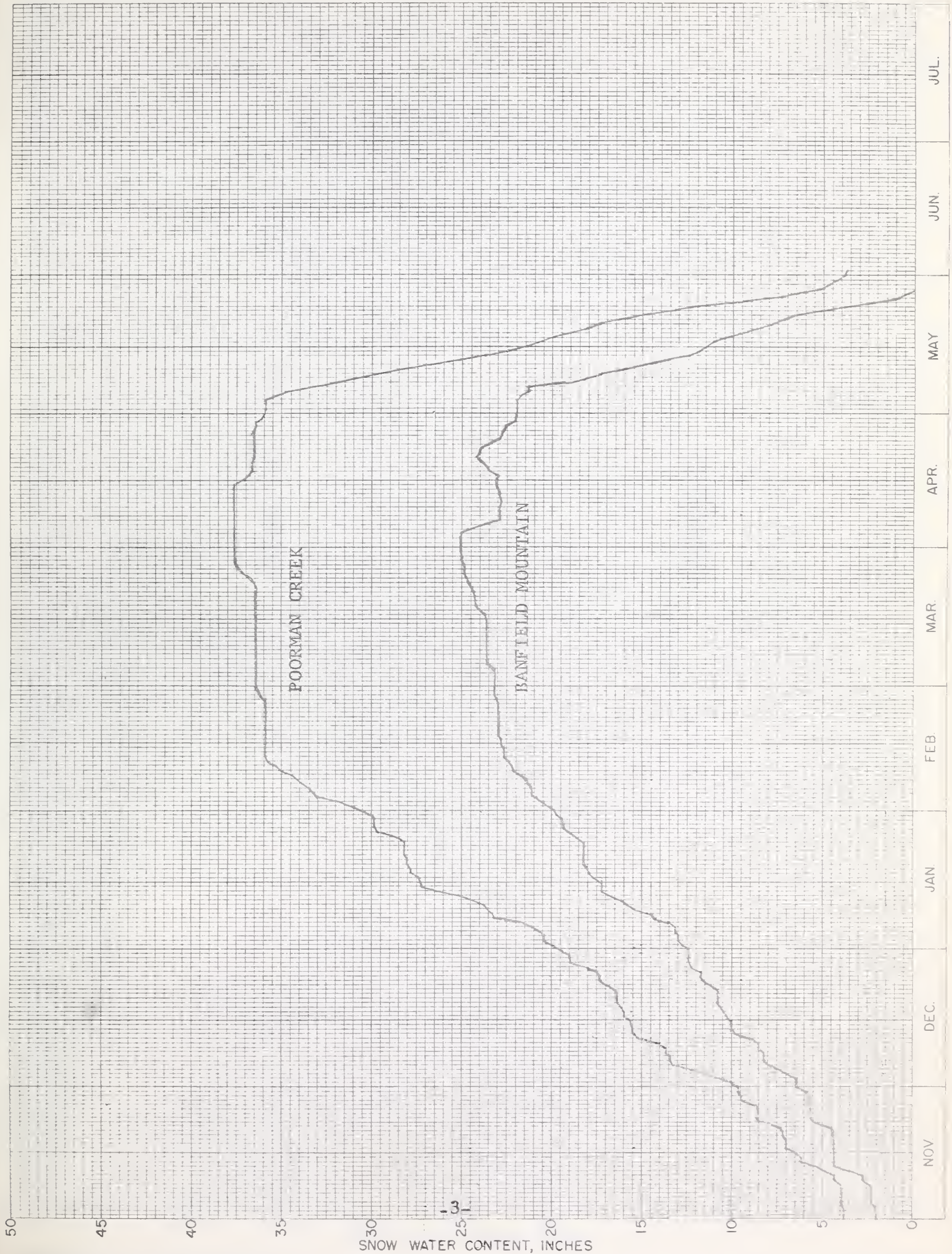
INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

SNOW COURSES

COLUMBIA RIVER BASIN										MISSOURI RIVER BASIN											
Number	Elev.	Sec.	Top.	Range	Record Began	Measuring Dates $\frac{1}{2}$	Mean, By $\frac{2}{2}$	Drainage Basin & Course Name		Number	Elev.	Sec.	Top.	Range	Record Began	Measuring Dates $\frac{1}{2}$	Mean, By $\frac{2}{2}$	Drainage Basin & Course Name			
KOOTENAI RIVER										UPPER YELLOWSTONE RIVER											
15411	5700	9	27N	31W	1969	3,4,5	1	Ruby River		11014	8950	5	4S	7N	1967	3,4,5	1,1,2	Bald Ridge			
15408	5600	4	32N	30W	1969	1,2,3,4,5,5 $\frac{1}{2}$,6	1	Branahan Lakes		11008	8600	28	9S	2N	1963	3,4,5	1	Camp Soda			
15411	5500	36	26N	31W	1956	3,4,5,5 $\frac{1}{2}$,6	2	Olivine		12807	7900	14	12S	4W	1963	3,4,5	1	Cooke Station			
15416	4600	31	26N	30W	1965	3,4,5,5 $\frac{1}{2}$,6	2	Middle Mill Creek		11015	7850	17	4S	3W	1967	3,4,5	1,1,2	Crevice Mountain			
15415	3800	5	25N	30W	1965	3,4,5,5 $\frac{1}{2}$,6	2	Metch		12806	8500 ¹	18	11S	4W	1963	3,4,5	1	Flahar Creek			
15416	4100	12	30N	26W	1977	3,4,5,5 $\frac{1}{2}$,6	1,2	Saugleer Mine		12005	6960	24	4S	3W	1967	3,4,5	1,1,2	Grizzly Peak			
15413	4100	35	28N	31W	1969	3,4,5	1	BIG HOLE RIVER												Mudpan Creek	
15406	6100	9	36N	29W	1969	3,4,5,5 $\frac{1}{2}$,6	1	Abundance Lake												Northwest Entrance	
15407	5200	35	37N	29W	1969	3,4,5,5 $\frac{1}{2}$,6	1	Oarkhorse Lake		13020	8800	22	7S	12E	1967	3,4,5	1	Portuguese R.S.			
15405	4200	18	37N	29W	1969	3,4,5,5 $\frac{1}{2}$,6	1	Foolhorn		13021	7400	33	9S	14E	1937	3,4,5,5 $\frac{1}{2}$,6	1,6	Sacajawea			
15404	4200	18	37N	29W	1969	3,4,5,5 $\frac{1}{2}$,6	1	Pellandee Creek		13022	6500	36	2N	6E	1960	3,4,5	1	South Fork Shoshone			
15403	6500	18	37N	33W	1969	3,4,5,5 $\frac{1}{2}$,6	1	Shag-Hell Lake		13023	8850	10	8S	18E	1963	3,4,5	1	Timberline Creek			
15409	5000	31	33N	29W	1969	3,4,5,5 $\frac{1}{2}$,6	1	JEFFERSON RIVER		13024	8750	29	5S	17W	1967	3,4,5	1	Wentworth			
15412	5100	5	27N	31W	1969	3,4,5,5 $\frac{1}{2}$,6	1	BERRY MEADOW		13024	8750	29	5S	17W	1967	3,4,5	1	White Hill			
14412	6050	4	36N	29W	1977	3,4,5,5 $\frac{1}{2}$,6	1,2	Copper Mountain												Yellowstone River	
14407	7450	20	37N	24W	1957	3,4,5,5 $\frac{1}{2}$,6	1,2	Mes Perce Creek												Yellowstone River	
FLATHEAD RIVER										KOOTENAI RIVER											
13411	5150	11	24N	25W	1961	3,4,5	1,5	MADISON RIVER		12007	7200	8	5N	5W	1962	3,4,5	1	Barre Trail			
13411	5900	31	28N	11W	1964	3,4,5	1,5	Call Road		12009	7700	13	3N	7W	1966	3,4,5	4	Murphy Lake R.S.			
13417	6750	30	28N	18W	1941	3,4,5,6	1,5	Four Mile		12010	6500	16	4N	6W	1967	3,4,5	4	Ravon R.S.			
13417	6400	30	28N	18W	1962	3,4,5,6	1,5	Mojito One		12011	7200	10	1N	7W	1938	3,4,5	1				
13412	5600	24	22N	18W	1962	3,4,5,6	1,5	Jack Creek												Flathead River	
13412	5600	24	22N	18W	1962	3,4,5,6	1,5	Lake Creek		11007	8050	21	8S	2W	1962	3,4,5	1	Onast Mountain			
13419	6300	12	35N	18W	1962	3,4,5,6	1,5	Lower Park		11012	6950	5	4S	2W	1965	3,4,5	1	Marlee Pass			
14409	5150	31	28N	25W	1960	3,4,5	1,5	Madison Plateau		11015	7500	13	6S	1E	1961	3,4,5,5 $\frac{1}{2}$,6	2	Clark Fork River			
13412	6300	35	32N	22W	1942	3,4,5,5 $\frac{1}{2}$,6	2	Morillon Creek		11021	7750	28	14S	5E	1968	3,4,5,5 $\frac{1}{2}$,6	1,2	Black Pine			
13413	4530	18	21N	31W	1951	3,4,5,5 $\frac{1}{2}$,6	1,2	Northwood Park		11023	7500	24	3S	3W	1961	3,4,5	2	Lubrecht Forest			
14406	3850	14	30N	24W	1937	3,4,5	1,2	Potomac Creek		11024	7000	31	10S	3E	1965	3,4,5	2	Snoddy Lake			
13415	5250	34	30N	24W	1934	3,4,5	1,2	Seminole Creek		11025	7150	33	10S	3E	1965	3,4,5	2	Shoemaker Summit			
13416	4000	29	35N	17W	1957	3,4,5,5 $\frac{1}{2}$,6	1,5	Ten Mile Middle		11026	8000	15	10S	3E	1965	3,4,5,5 $\frac{1}{2}$,6	2	Snoke Summit			
13407	6300	31	17N	17W	1941	3,4,5	1	Ten Mile Upper		11027	6700	14	13S	5E	1934	3,4,5	1,1,1,6	Bitterroot River			
13402	7000	23	25N	15W	1948	3,4,5	1	CLARK FORK RIVER		11028	6800	19	14S	5E	1967	3,4,5	2	Gibbons Pass			
13401	6100	9	25N	17W	1948	3,4,5	1	Black Pine		11029	7100	4	2S	19W	1962	3,4,5	1	Lolo Pass			
13411	3580	28	20N	15W	1948	3,4,5	1	Copper Creek		12004	5250	11	10N	24W	1963	3,4,5	1				
13405	7100	26	8N	15W	1959	1,2,3,4,5,5 $\frac{1}{2}$,6	1	Cotton Creek												Missouri River Basin	
13413	5700	1	15N	9W	1962	3,4,5	1,2	Coyote Hill												Missouri River Basin	
13413	6250	1	15N	9W	1962	3,4,5	1,2	Flat-Side Pass												Missouri River Basin	
13419	8000	12	6N	12W	1949	3,4,5	1	Gold Creek Lake												Missouri River Basin	
13410	7200	14	8N	12W	1949	3,4,5	1	Heart Lake Trail												Missouri River Basin	
14210	4800	11	14N	27W	1965	3,4,5	1	Hoodoo Basin												Missouri River Basin	
15011	5900	16	14N	27W	1967	3,4,5,5 $\frac{1}{2}$,6	1,2	Intergraph												Missouri River Basin	
15011	5900	16	14N	27W	1967	3,4,5,5 $\frac{1}{2}$,6	1,2	Lubrecht Forest No. 3												Missouri River Basin	
13021	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Creek												Missouri River Basin	
13022	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13023	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13024	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13025	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13026	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13027	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13028	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13029	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13030	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13031	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13032	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13033	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13034	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13035	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13036	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13037	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13038	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13039	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13040	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13041	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13042	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13043	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13044	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13045	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13046	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13047	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13048	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13049	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13050	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13051	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13052	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13053	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13054	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13055	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13056	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13057	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13058	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13059	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13060	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13061	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13062	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13063	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13064	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13065	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13066	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13067	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13068	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Pass												Missouri River Basin	
13069	4650	23	13N	15W	1951	3,4,5	8	Mes Perce Camp												Missouri River Basin	
13070																					

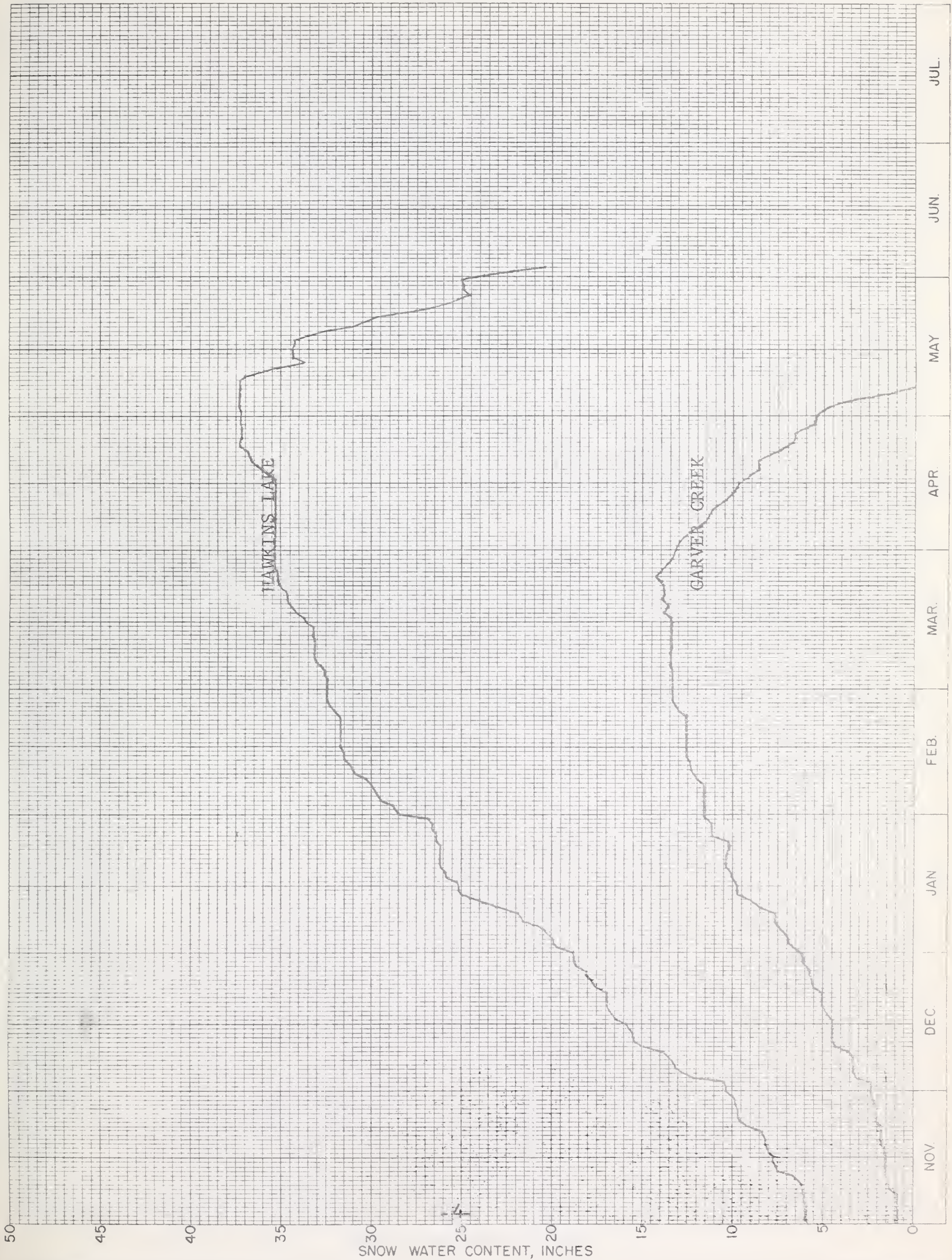
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: KOOTENAI



SNOW PILLOW DATA
WATER YEAR 1969

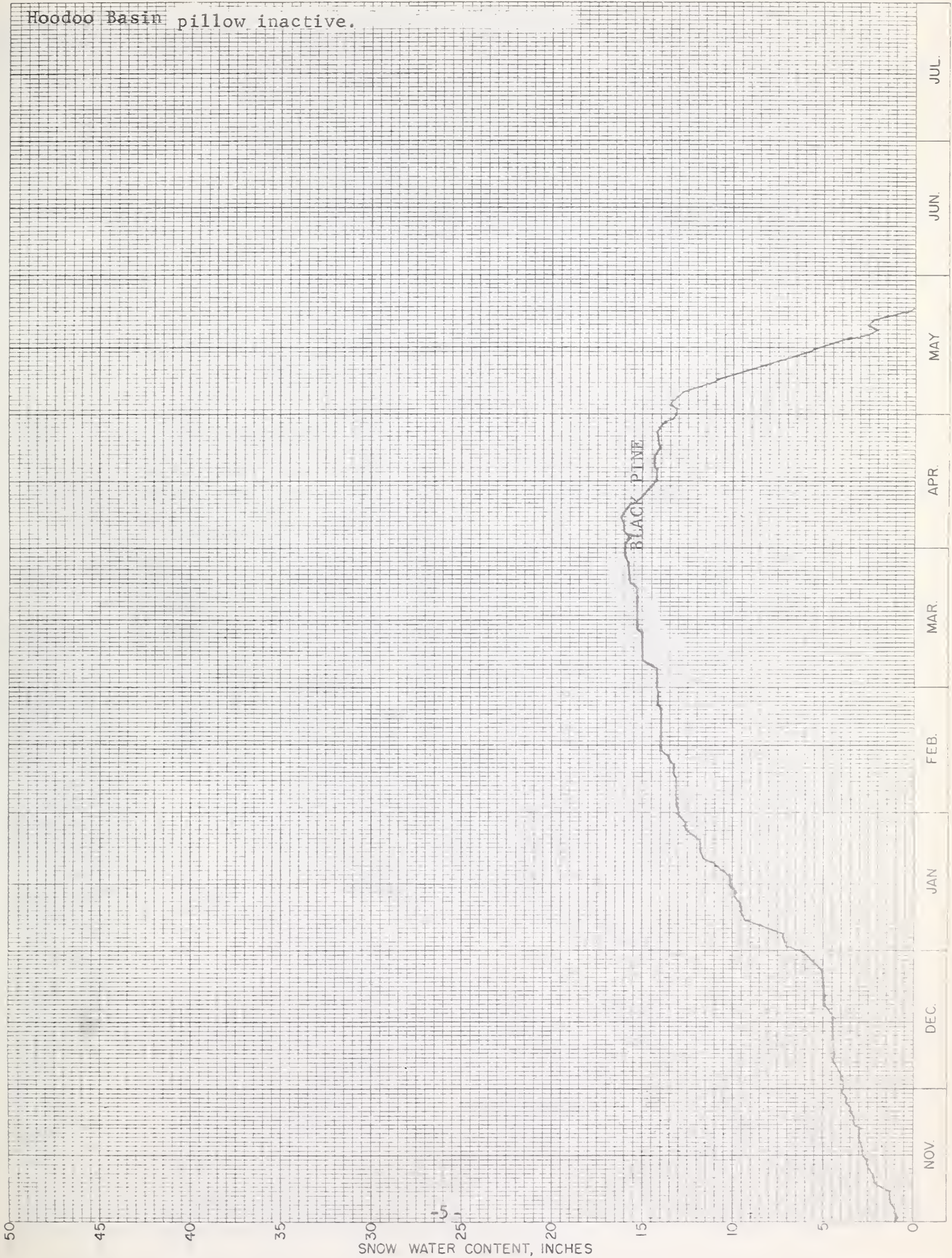
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SNOW PILLOW DATA
WATER YEAR 1969

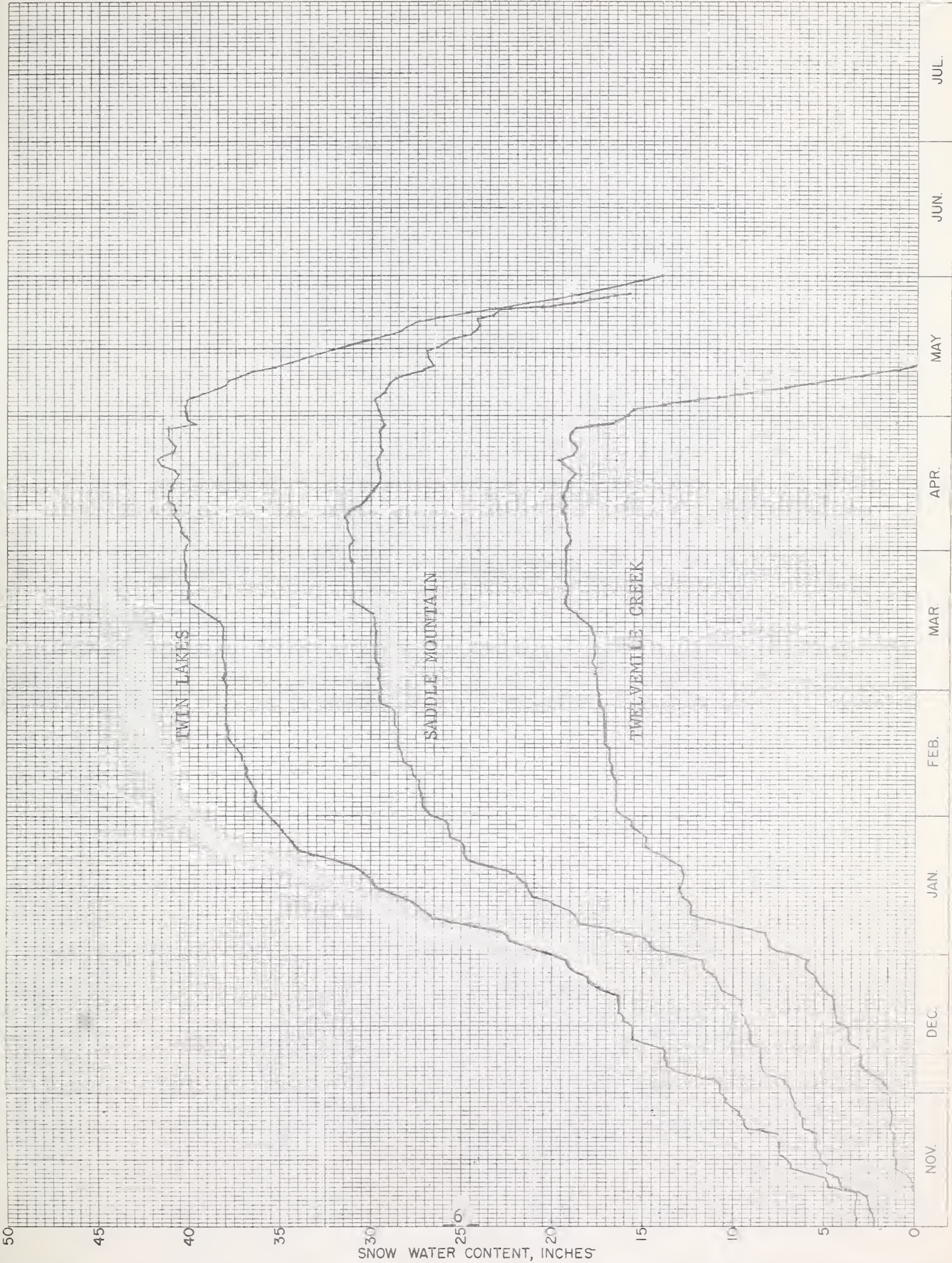
No. _____ Elev. _____ Drainage: CLARK FORK

Hoodoo Basin pillow inactive.



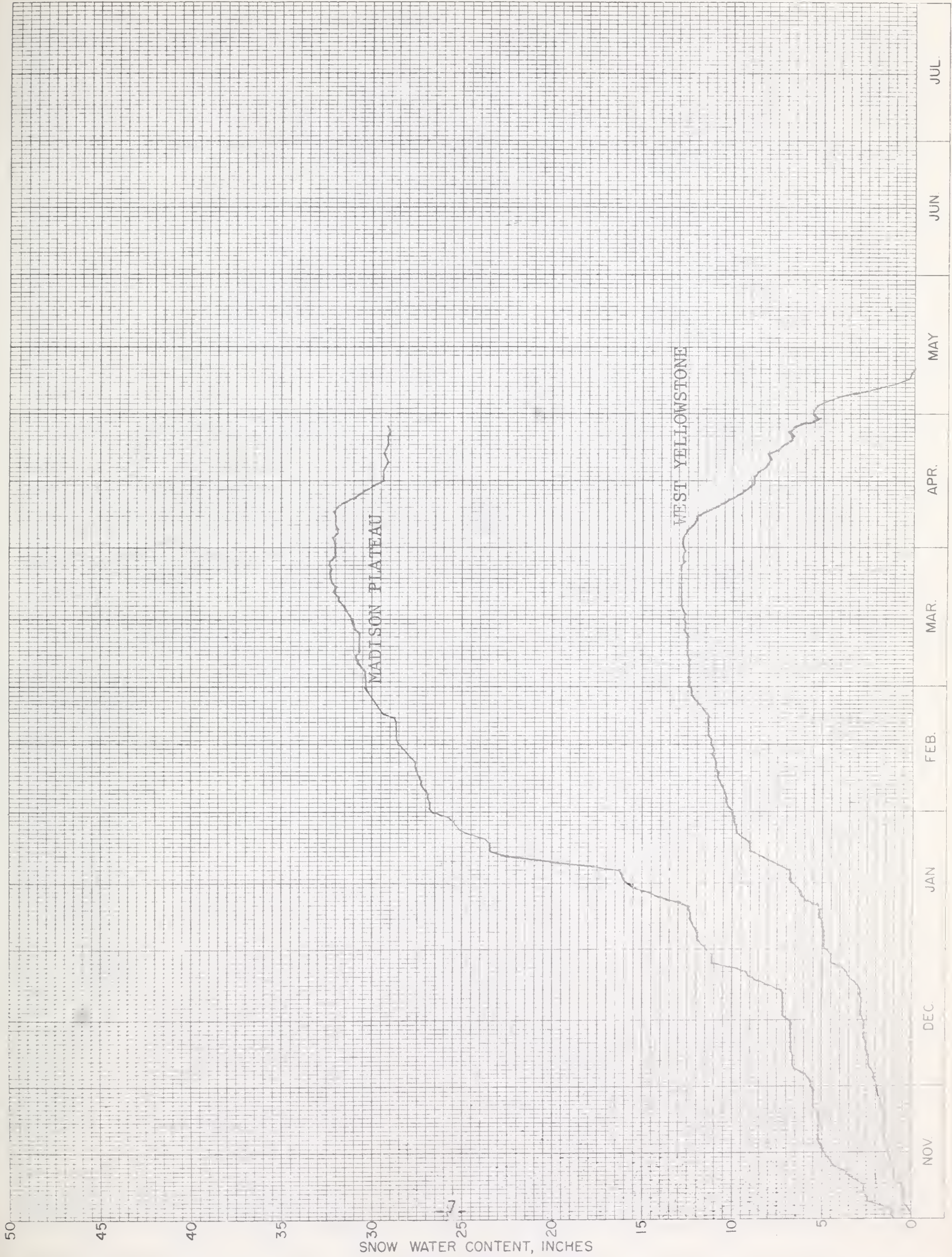
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: BITTERROOT



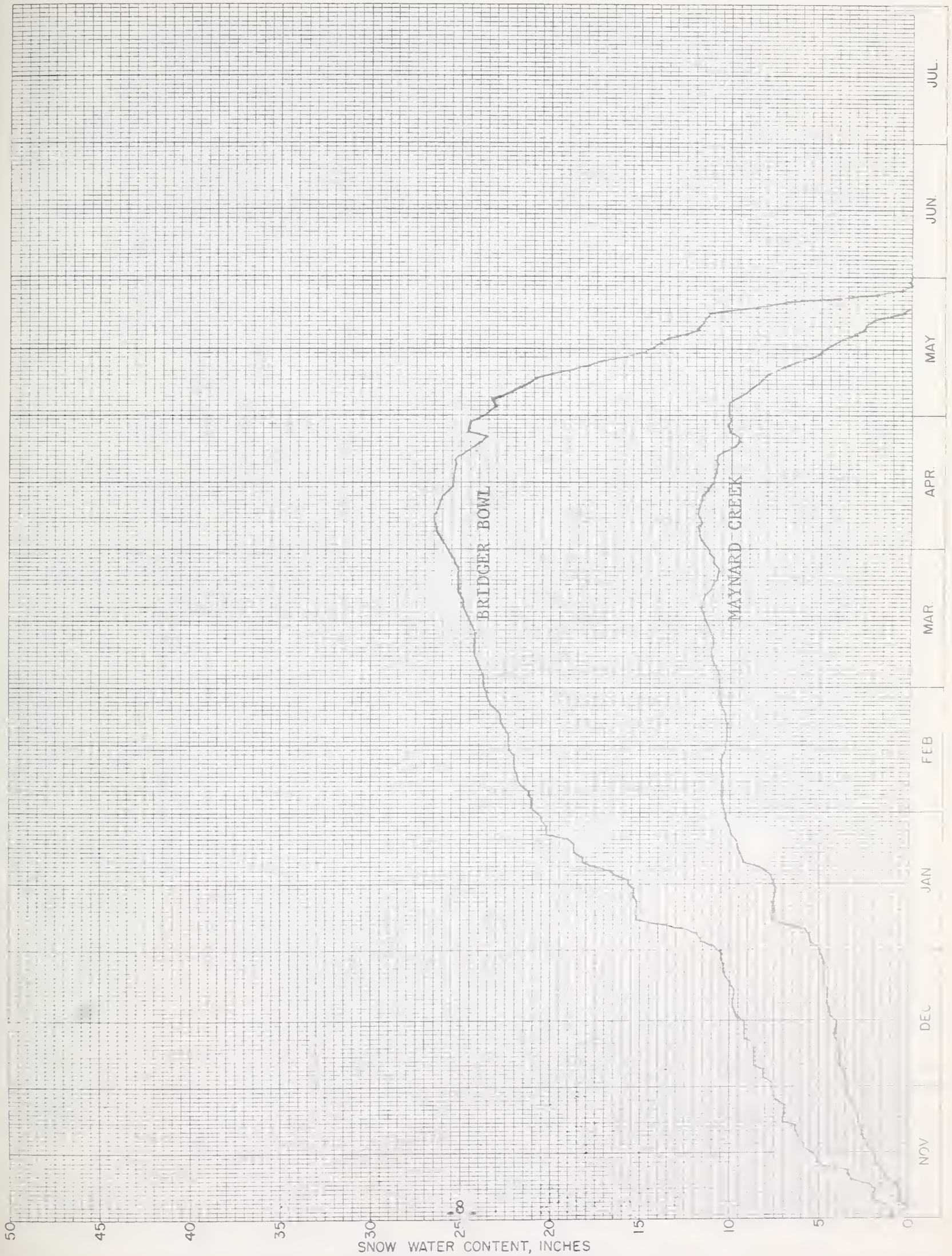
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: MADISON



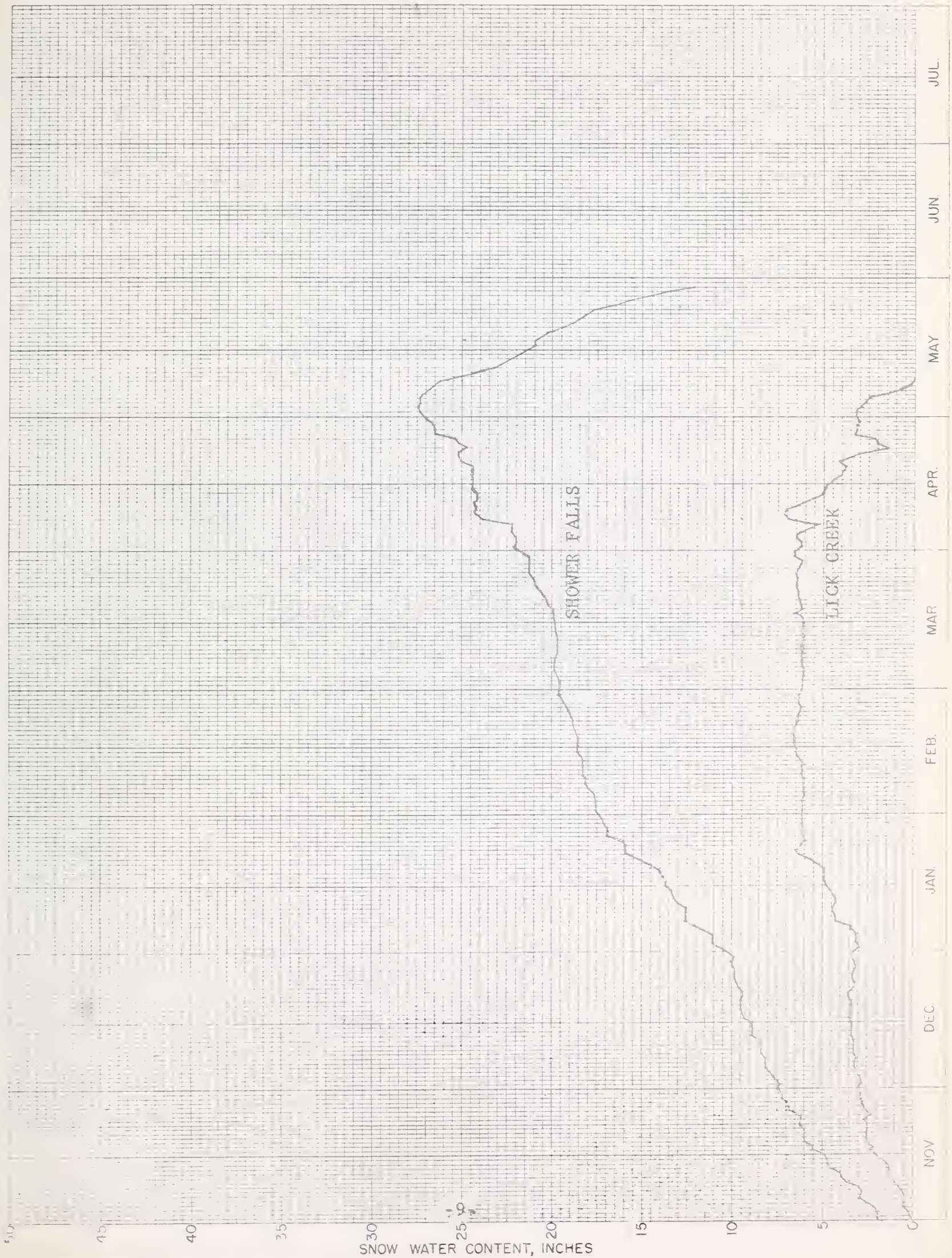
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: GALLATIN



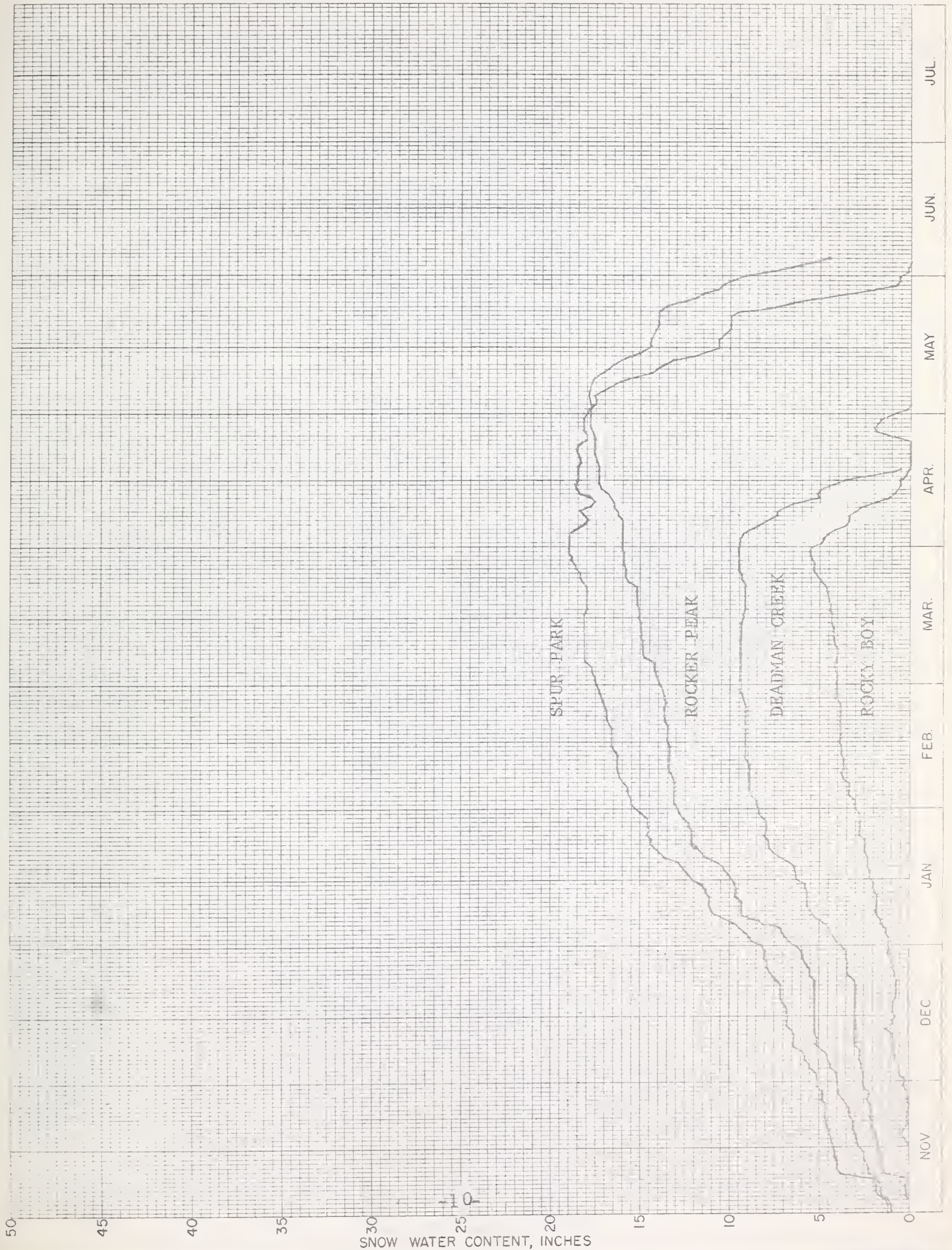
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: GALLATIN



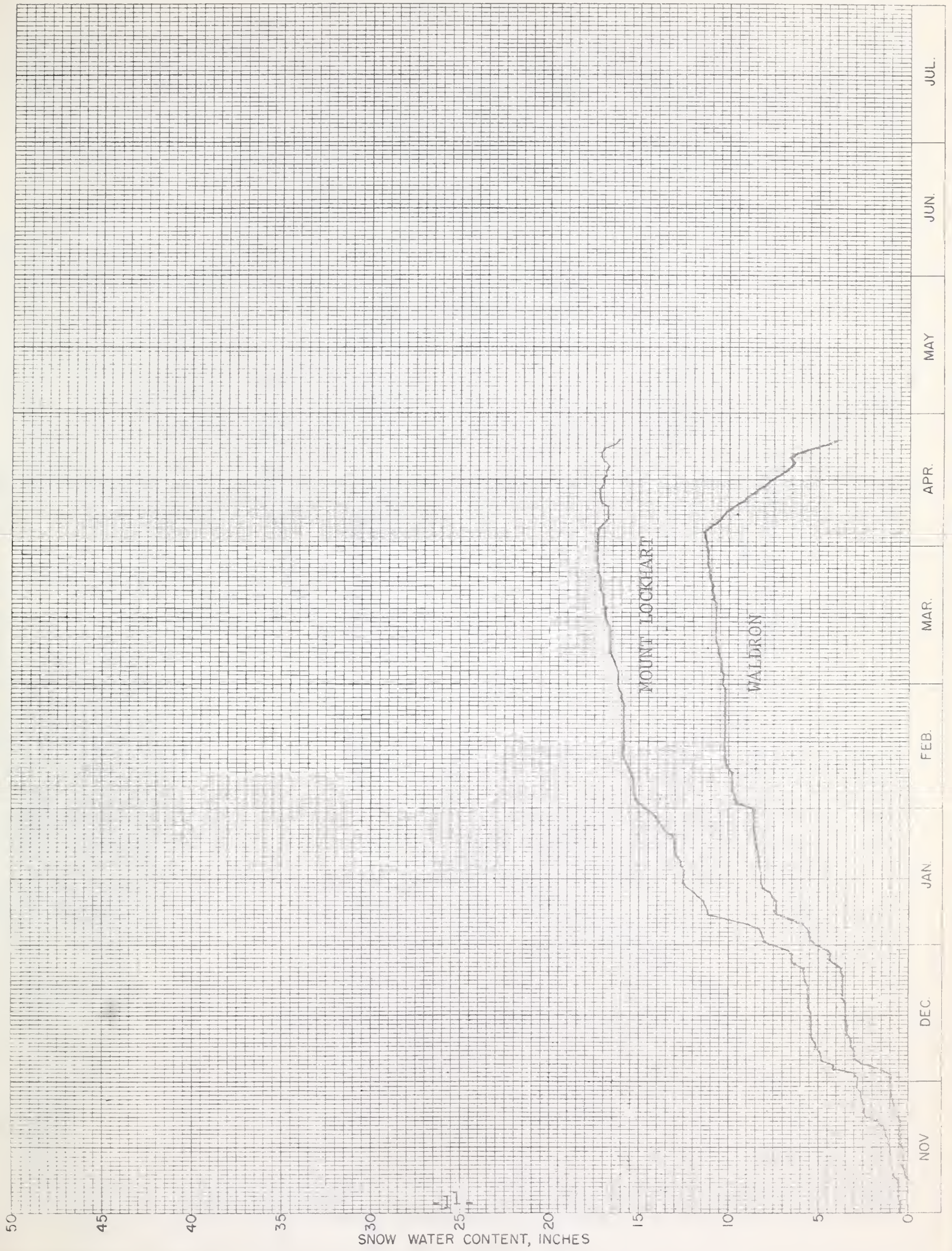
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: JUDITH-JEFFERSON-MISSOURI



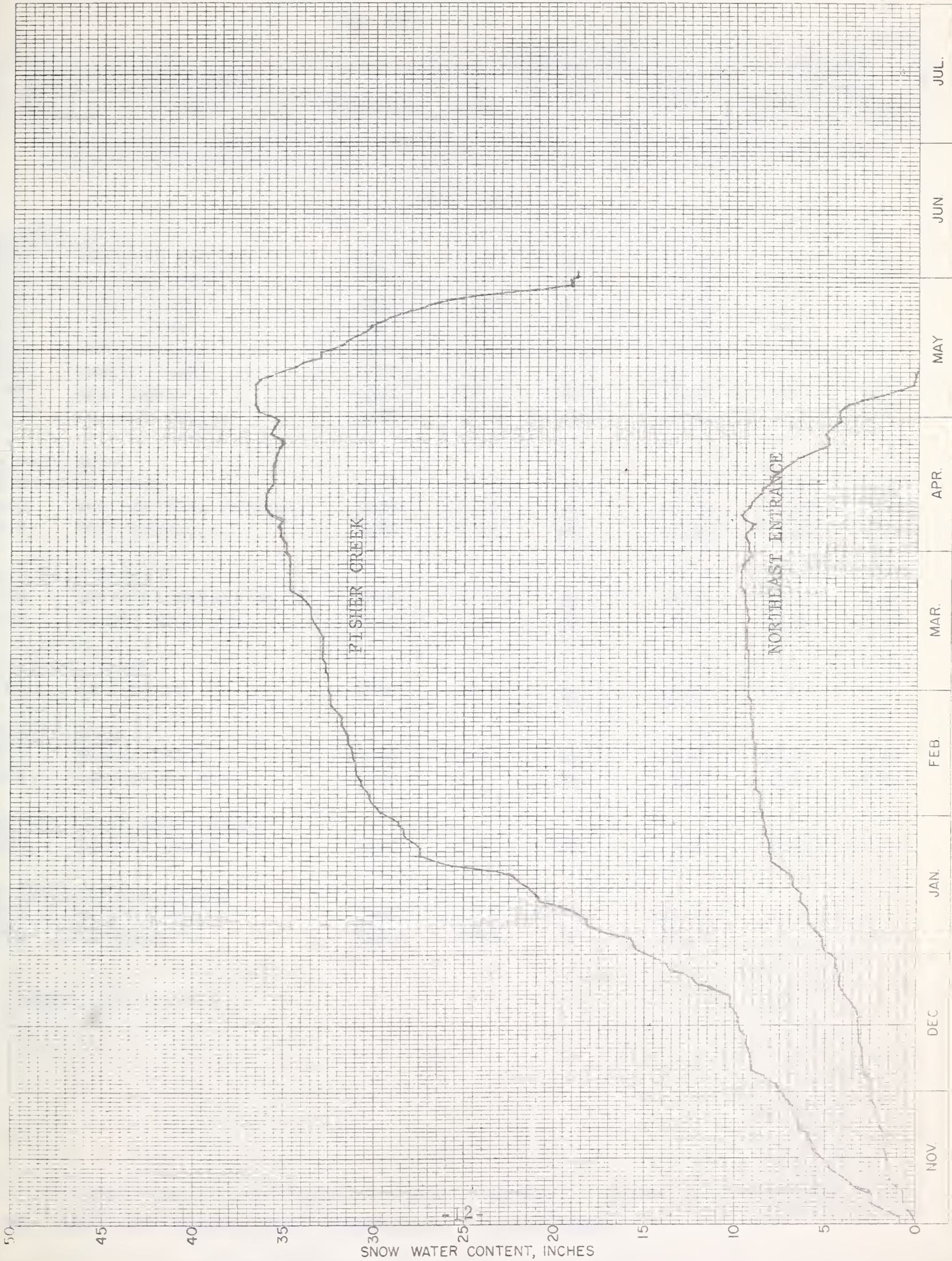
SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: SUN



SNOW PILLOW DATA
WATER YEAR 1969

No. _____ Elev. _____ Drainage: YELLOWSTONE





SNOW SURVEY DATA

AS OF

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

SUPPLEMENTAL MEASUREMENTS AND CORRECTIONS TO PREVIOUSLY PUBLISHED 1968 DATA

January 1

Kootenai River

15A08	Banfield Mountain	5600	1/8	59	16.5	-	-
15A10	Bristow Creek	3900	1/8	42	9.9	-	-
15A13	Cedar Grove	4100	1/10	42	9.6	-	-
15A04	Davis Creek	5400	1/9	59	17.0	-	-
15A05	Garver Creek	4250	1/9	38	8.1	-	-
15A03	Hawkins Lake	6450	1/9	73	24.5	-	-
15A09	Lost Soul	4800	1/8	45	11.1	-	-
15A12	Poorman Creek	5100	1/10	89	27.4	-	-

Flathead River

13B13	Holbrook	4530	1/15	36	8.0A	3.0A	3.4*
13B02	Spotted Bear Mountain	7000	1/15	47	12.0A	7.0A	6.5*
13B11	Twin Creeks	3580	1/15	46	11.0A	5.0A	5.0*

Clark Fork River

13C22	Lubrecht Forest No. 4	4650	1/3	<u>17</u>	2.0	2.1	1.4
13C01	Stuart Mountain	7400	1/2	<u>67</u>	15.1	16.0	12.1*

Bitterroot River

14C07	Lost Horse	5940	12/30	<u>54</u>	<u>14.8</u>	13.6	-
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Gallatin River

10D16	Shower Falls	8100	1/2	44	12.0	20.8	6.8*
11E06	Twenty-One Mile	7150	1/1	46	<u>9.2</u>	7.4	7.2

Missouri River (Main Stem)

10C09	Deadman Creek	6450	1/9	28	5.0	5.2	-
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Sun-Teton-Marias Rivers

13A15	Badger Pass	6900	1/15	99	32.0A	-	-
13A20	Blue Lake	5900	1/15	75	22.0A	-	-

A - Aerial observation

SNOW SURVEY DATA

AS OF

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

SUPPLEMENTAL MEASUREMENTS AND CORRECTIONS (Continued)

February 1

Kootenai River

15A08	Banfield Mountain	5600	2/4	84	26.7	-	-
15A10	Bristow Creek	3900	2/4	57	14.6	-	-
13A13	Cedar Grove	4100	2/6	52	14.0	-	-
15A04	Davis Creek	5400	2/5	74	25.4	-	-
15A05	Garver Creek	4250	2/5	51	14.0	-	-
15A03	Hawkins Lake	6450	2/5	93	32.9	-	-
15A09	Lost Soul	4800	2/4	63	18.2	-	-
15A02	Poorman Creek	5100	2/6	114	39.7	-	-

Madison River

11E22	Lake Creek	6100	1/28	37	8.6	-	-
11E28	Lion Mountain	8760	1/31	72	22.2	-	-
11E23	Meridian Creek	7000	1/29	55	13.5	-	-
11E33	Soap Bogus Divide	7600	1/28	60	16.2	-	-
11E24	Tepee Creek	8000	1/30	67	20.0	-	-

Gallatin River

11E29	Carrot Basin	9000	2/4	114	44.6	-	-
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Missouri River (Main Stem)

9A02	Bear Paw Ski Area	5200	2/7	22	4.8	-	-
9A01	Rocky Boy	4700	2/7	19	3.8	5.0	-
12C04	Ten Mile Upper	8000	2/3	48	<u>14.7</u>	13.0	8.8

Sun-Teton-Marias Rivers

13A15	Badger Pass	6900	2/4	123	37.0A	-	-
13A20	Blue Lake	5900	2/4	81	23.5A	-	-

Upper Yellowstone River

9D06	Fisher Creek	9100	1/14	77	23.3	-	-
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A - Aerial observation

SNOW SURVEY DATA

AS OF

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

SUPPLEMENTAL MEASUREMENTS AND CORRECTIONS (Continued)

March 1

Kootenai River

15B11	Baree Creek	5500	2/28	122	<u>47.6</u>	36.0	43.5*
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Flathead River

13A11	Beaver Lake	5900	3/11	64	23.2	19.1	20.0*
13B12	Gunsight Lake	6300	3/11	90	38.6	34.5	36.0*
13B13	Holbrook	4530	3/11	39	11.4	6.6	9.9
13B02	Spotted Bear Mountain	7000	3/11	43	14.4	12.2	13.6
13B01	Trinkus Lake	6100	3/11	101	41.5	33.8	37.0*
13B11	Twin Creeks	3580	3/11	42	14.2	6.5	11.3
13B05	Upper Holland Lake	6200	3/11	87	<u>35.6</u>	31.4	30.4*

Beaverhead River

11E04	Lakeview Canyon	6930	3/3	78	<u>23.3</u>	11.9	9.7
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Sun-Teton-Marias Rivers

13A15	Badger Pass	6900	3/11	95	38.9	34.0	31.8*
13A20	Blue Lake	5900	3/11	71	28.9	-	-
12B09	Five-Bull	5700	3/11	33	9.3	6.2	5.7*
12A01	Freight Creek	6000	3/11	48	14.2	12.0	14.1
12B07	Goat Mountain	7000	2/28	42	<u>12.1</u>	7.8	10.2
12B04	Wrong Creek	5700	2/26	45	<u>13.5</u>	11.2	14.3

Upper Yellowstone River

9D06	Fisher Creek	9100	2/28	101	<u>38.0</u>	32.0	-
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May 1

Flathead River

13B05	Upper Holland Lake	6200	5/4	65	<u>33.2</u>	39.1	39.7
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May 15

Kootenai River

15B11	Baree Creek	5500	5/15	63	<u>35.2</u>	33.6	43.4*
15B16	Baree Midway	4600	5/15	34	<u>19.1</u>	12.4	-

Flathead River

14A03	Hell Roaring Divide	5770	5/22	18	9.8	21.4	27.5*
13B07	North Fork Jocko	6330	5/15	51	<u>29.0</u>	38.7	46.2*

SNOW SURVEY DATA

AS OF JUNE 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

COLUMBIA RIVER BASIN

KOOTENAI RIVER

15A11	Bald Eagle Peak	5700	6/2	51	31.3	-	-
15A08	Banfield Mountain	5600	6/4	0	0.0	-	-
15A10	Bristow Creek	3900	6/4	0	0.0	-	-
15A13	Cedar Grove	4100	6/2	0	0.0	-	-
15A04	Davis Creek	5400	6/3	0	0.0	-	-
15A05	Garver Creek	4250	6/3	0	0.0	-	-
BC 11	Glacier	4100	5/28	12	6.3	15.5	11.2
14A11	Graves Creek	4300	6/5	0	0.0	0.0	0.8*
BC 43	Gray Creek	5100	5/30	0	0.0	9.2	11.3*
15A03	Hawkins Lake	6450	6/3	25	13.5	-	-
15A09	Lost Soul	4800	6/4	0	0.0	-	-
15A12	Poorman Creek	5100	6/2	0	0.0	-	-
15A01	Red Mountain	6000	6/2	0	0.0	5.4	5.6*
14A12	Stahl Peak	6050	6/5	30	16.8	-	-
14A07	Weasel Divide	5450	6/5	7	3.6	18.2	19.7*

FLATHEAD RIVER

13B03	Big Creek	6750	6/2	48	28.2	52.0	42.7
13A02	Desert Mountain	5600	5/28	0	0.0	0.0	0.7*
13B04	Fatty Creek	5500	6/2	0	0.0	9.6	7.2*
14A03	Hell Roaring Divide	5770	5/29	6	3.1	11.1	13.5*
13B07	North Fork Jocko	6330	6/3	16	9.4	29.7	30.7

CLARK FORK RIVER

13C13	Black Pine	7100	6/3	0	0.0	4.6	4.1*
13C13	Black Pine Pillow	7100	6/3	SP	0.0	1.7	-
14C10	Heart Lake Trail	4800	5/29	0	0.0	0.0	-
15C10	Hoodoo Basin	6000	5/29	45	24.9	35.4	-
15C01	Hoodoo Creek	5900	5/29	45	24.6	31.2	32.0*
13C03	Skalkaho Summit	7260	6/3	0	0.0	18.8	16.8*

BITTERROOT RIVER

13D02	Gibbons Pass	7100	5/27	2	0.9	6.4	7.6*
14C07	Lost Horse	5940	6/2	15	8.2	18.2	18.5*
13D22	Saddle Mountain	7940	5/27	26	13.6	20.6	18.0*
13D22	Saddle Mountain Pillow	7940	5/27	SP	15.8	20.2	-
14C13	Twelvemile Creek	5600	6/2	0	0.0	0.0	-
14C13	Twelvemile Creek Pillow	5600	6/2	SP	0.0	0.0	-
14C08	Twin Lakes	6510	6/2	28	15.6	32.4	32.2*
14C12	Twin Lakes Pillow	6400	6/2	SP	13.0	28.6	-

SP - Snow pillow observation - water content only.

January 1, 1901

REPORT OF THE

COMMISSIONERS OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION PASSED BY THE SENATE

SNOW SURVEY DATA

AS OF JUNE 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

MISSOURI RIVER BASIN

JEFFERSON RIVER

12C11	Rocker Peak	8000	6/4	0	0.0	10.2	-
12C11	Rocker Peak Pillow	8000	6/4	SP	4.5	19.4	-

MADISON RIVER

11E07	West Yellowstone Pillow	6700	6/2	0	0.0	0.0	-
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GALLATIN RIVER

10D14	Arch Falls	7350	6/2	1	0.3	14.4	8.9*
10D15	Bridger Bowl	7250	6/3	3	1.6	35.9	20.8*
10D15	Bridger Bowl Pillow	7250	6/3	SP	0.0	32.5	-
10D04	Devil's Slide	8100	6/2	25	11.6	33.2	23.0*
10D03	Hood Meadow	6600	6/2	0	0.0	0.5	1.5*
10D13	Lick Creek	6860	6/2	0	0.0	0.0	0.0*
10D13	Lick Creek Pillow	6860	6/2	0	0.0	0.0	-
10D18	Maynard Creek	6210	6/3	0	0.0	9.0	-
10D18	Maynard Creek Pillow	6210	6/3	SP	0.0	9.9	-
10D16	Shower Falls	8100	6/2	24	11.5	37.5	25.6*
10D16	Shower Falls Pillow	8100	6/2	SP	10.5	35.9	-

MISSOURI RIVER (Main Stem)

10D09	Deadman Creek	6450	6/3	0	0.0	0.0	-
10C09	Deadman Creek Pillow	6450	6/3	SP	0.0	0.0	-
10C01	Kings Hill	7500	6/3	0	0.0	15.6	10.3*

JUDITH RIVER

10C06	Spur Park	8000	6/3	3	1.2	25.1	19.5*
10C06	Spur Park Pillow	8000	6/3	SP	0.0	24.7	-

UPPER YELLOWSTONE RIVER

9D01	Camp Senia	7890	6/2	0	0.0	8.9	5.6*
9D07	Cooke Station	8150	6/2	0	0.0	13.6	-
9D06	Fisher Creek	9100	6/2	46	24.5	37.2	-
9D06	Fisher Creek Pillow	9100	6/2	SP	19.3	32.4	-
10D07	Northeast Entrance	7400	6/2	0	0.0	0.0	-
10D07	Northeast Entrance Pillow	7350	6/2	0	0.0	0.0	-
9D04	Timberline Creek	8850	6/2	0	0.0	19.5	-
9D08	White Mill	8700	6/2	27	13.5	26.3	-

SP - Snow pillow observation - water content only.

SNOW SURVEY DATA

JAN - FEB - MAR

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STATION	DATE	TIME	WIND	TEMP	PRECIP		NOTES
					TYPE	AMOUNT	
101	1/1	0800	W	-10	S	0.2	Light snow
101	1/1	1200	W	-12	S	0.1	Light snow
101	1/1	1600	W	-15	S	0.3	Light snow
101	1/1	2000	W	-18	S	0.4	Light snow
101	1/2	0600	W	-20	S	0.5	Light snow
101	1/2	1000	W	-22	S	0.6	Light snow
101	1/2	1400	W	-25	S	0.7	Light snow
101	1/2	1800	W	-28	S	0.8	Light snow
101	1/3	0700	W	-30	S	0.9	Light snow
101	1/3	1100	W	-32	S	1.0	Light snow
101	1/3	1500	W	-35	S	1.1	Light snow
101	1/3	1900	W	-38	S	1.2	Light snow
101	1/4	0500	W	-40	S	1.3	Light snow
101	1/4	0900	W	-42	S	1.4	Light snow
101	1/4	1300	W	-45	S	1.5	Light snow
101	1/4	1700	W	-48	S	1.6	Light snow
101	1/5	0600	W	-50	S	1.7	Light snow
101	1/5	1000	W	-52	S	1.8	Light snow
101	1/5	1400	W	-55	S	1.9	Light snow
101	1/5	1800	W	-58	S	2.0	Light snow
101	1/6	0700	W	-60	S	2.1	Light snow
101	1/6	1100	W	-62	S	2.2	Light snow
101	1/6	1500	W	-65	S	2.3	Light snow
101	1/6	1900	W	-68	S	2.4	Light snow
101	1/7	0600	W	-70	S	2.5	Light snow
101	1/7	1000	W	-72	S	2.6	Light snow
101	1/7	1400	W	-75	S	2.7	Light snow
101	1/7	1800	W	-78	S	2.8	Light snow
101	1/8	0700	W	-80	S	2.9	Light snow
101	1/8	1100	W	-82	S	3.0	Light snow
101	1/8	1500	W	-85	S	3.1	Light snow
101	1/8	1900	W	-88	S	3.2	Light snow
101	1/9	0600	W	-90	S	3.3	Light snow
101	1/9	1000	W	-92	S	3.4	Light snow
101	1/9	1400	W	-95	S	3.5	Light snow
101	1/9	1800	W	-98	S	3.6	Light snow
101	1/10	0700	W	-100	S	3.7	Light snow
101	1/10	1100	W	-102	S	3.8	Light snow
101	1/10	1500	W	-105	S	3.9	Light snow
101	1/10	1900	W	-108	S	4.0	Light snow

SOIL MOISTURE DATA

AS OF JUNE 1, 1969

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		FAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	**AVERAGE

COLUMBIA RIVER BASIN

Kootenai

15B15M	Baree Trail	3800	48	7.5			6.2	-
14A10M	Murphy Lake R. S.	3000	48	22.6	6/2	20.0	20.2	20.8
15A02M	Raven R. S.	3050	48	23.0			19.8	-

Flathead

13A02M	Desert Mountain	5600	54	8.4	5/28	8.7	9.2	9.0
13A05M	Marias Pass	5250	54	6.5	6/1	5.8	5.5	5.8

Clark Fork

13C13M	Black Pine	7100	48	10.0	6/3	8.6	8.5	-
13B19M	Seeley Lake R. S.	4030	48	11.9			-	-
13C03M	Skalkaho Summit	7260	48	10.8	6/3	9.8	10.0	10.0

Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	5/27	7.0	7.2	7.0
14C05M	Lolo Pass	5250	48	10.6	5/29	9.9	10.0	10.0

MISSOURI RIVER BASIN

Beaverhead

11E13M	Lakeview	6700	48	15.3	6/2	10.2	15.6	14.9
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Madison

11D04M	Red Bluff	4800	40	4.7			2.1	2.3
11E07M	West Yellowstone	6700	48	6.5	6/1	2.8	3.1	-

Gallatin

10D15M	Bridger Bowl	7250	48	17.0	6/3	16.7	17.0	-
11D02M	College Site	4856	54	14.5	5/31	10.9	13.5	11.3
10D13M	Lick Creek	6860	48	18.8	6/2	17.8	17.1	-
11E06M	Twenty-One Mile	7150	48	10.0	5/28	9.8	9.7	9.8

Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	6/3	11.3	10.0	10.8
12C08M	Stemple Pass	6350	48	5.9	5/29	5.2	5.2	5.2

Yellowstone

10D11M	Battle Ridge	6020	48	17.6	6/3	15.0	16.8	15.6
10D07M	Northeast Entrance	7350	48	9.4	5/29	9.7	9.4	9.1

**AVERAGE FOR PERIOD OF RECORD

RESERVOIR STORAGE DATA

AS OF MAY 31, 1969

(1000 Acre Feet)

			USEABLE STORAGE		
BASIN	RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVERAGE
COLUMBIA RIVER BASIN					
Flathead	Hungry Horse	3,428.0	2,748.0	2,817.0	1,632.0**
	Flathead Lake	1,791.0	1,469.0	1,415.0	1,494.0
	Camas (Sum of 4)	45.2	31.0	27.8	38.8
	Mission Valley (Sum of 8)	100.3	84.4	59.8	62.1
Clark Fork	Georgetown Lake	31.0	26.8	27.3	24.2
	Nevada Creek	12.6		12.6	11.9
	Noxon Rapids	334.6		182.6	220.7**
Bitterroot	Como	34.9	36.4	24.7	28.1
	Painted Rocks	31.7	33.3	33.0	32.6
MISSOURI RIVER BASIN					
Beaverhead	Clark Canyon	328.9	158.8	153.4	127.7**
	Lima	84.0	76.7	77.9	50.9
Ruby	Ruby	38.8		39.0	37.6
Madison	Hebgen Lake	377.5	351.6	317.4	278.4
	Ennis Lake	41.0	37.7	40.2	35.7
Gallatin	Middle Creek	8.0	7.8	6.9	6.7
Missouri	Canyon Ferry	2,043.0	1,847.0	1,395.0	1,722.0**
	Hauser & Helena	61.9	67.1	72.3	57.3
	Lake Helena	10.4	10.0	10.4	8.9
	Holter Lake	81.9	76.7	79.8	74.8
	Smith River	10.7	11.4	11.4	10.4**
	Durand	7.0	7.0	7.0	6.4
	Martinsdale	23.1	17.9	14.7	15.6
	Deadman's Basin	72.2	48.7	53.4	57.2
	Fort Peck	19,410.0	17,270.0	16,840.0	11,570.0
	Sun	Gibson	105.0	104.4	66.9
Willow Creek		32.2	29.9	26.3	27.6
Pishkun		32.0	26.1	31.2	38.1
Marias		Lower Two Medicine	16.6	13.7	13.7
	Four Horns	19.2	12.4	12.7	12.9
	Swift	30.0	30.1	22.4	28.3
	Lake Frances	112.0	92.7	77.3	98.2
	Tiber	1,313.0	598.7	467.0	742.0**
Milk	Fresno	127.2	99.4	987.0	109.5
	Nelson	66.8	53.0	41.0	46.9
	Lake Sherburne	66.1	55.3	21.1	28.3
Yellowstone	Mystic Lake	20.8	8.9	1.5	6.3
	Tongue River	68.0		42.0	35.5
	Cooney	27.5	19.3	19.4	16.5
Big Horn	Yellowtail	1,356.0	886.8	672.1	-

Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service
Region I, Missoula, Montana
Montana Forests and Ranger
Districts

U. S. Geological Survey
Helena, Montana
Portland, Oregon

U. S. Army Corps of Engineers
Portland, Oregon
Seattle, Washington
Walla Walla, Washington
Omaha, Nebraska

U. S. Indian Irrigation Service
St. Ignatius, Montana

U. S. Weather Bureau
Helena, Montana
Portland, Oregon
Kansas City, Missouri

U. S. Bureau of Sports Fisheries
and Wildlife
Red Rock Lakes Refuge
Monida, Montana

U. S. Bureau of Reclamation
Billings, Montana
Boise, Idaho

U. S. Bonneville Power Administration
Portland, Oregon

U. S. Soil Conservation Service
Montana, Wyoming, Idaho

Soil and Water Conservation Districts
Montana Counties

U. S. National Park Service
Yellowstone National Park
Glacier National Park

Montana Power Company
Butte, Montana

Montana Water Resources Board
Helena, Montana

North Montana Branch Station
Agricultural Experiment Station
Havre, Montana

Montana State University
Agricultural Experiment Station
Bozeman, Montana

University of Montana
School of Forestry
Missoula, Montana

Water Rights Branch, Dept. of
Lands and Forests
Victoria, British Columbia

Department of Energy, Mines and
Resources
Calgary, Alberta

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necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*